Code No: R21026 **R10** SET - 1

II B. Tech I Semester Supplementary Examinations, Oct/Nov- 2017
ELECTRONIC DEVICES AND CIRCUITS
(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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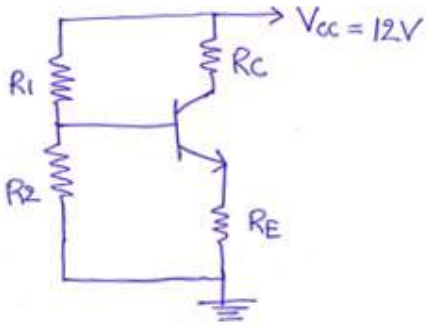
1. a) Explain about Two – Dimensional motion of electron.
   b) What is the force on a current carrying conductor in a magnetic field? Explain briefly. (7M+8M)
2. a) Discuss the following with respect to semiconductor
   i) doping ii) Dopant iii) donor iv) acceptor.
   b) Explain "Majority and minority carriers" in semiconductors. (8M+7M)
3. a) Explain briefly about the switching characteristics of a diode?
   b) List out the applications of tunnel diode and mention its advantages and disadvantages. (10M+5M)
4. a) A diode has an internal resistance of 20 Ω and 1000 Ω load from a 110 V rms source of supply. Calculate, i) The efficiency of rectification and
   ii) The percentage regulation from no-load to full load.
   b) Show that a Full wave rectifier is twice as efficiency as a Half wave rectifier. (8M+7M)
5. a) Calculate the values of Q and Y if (i) β = 50 (ii) β = 95 (iii) β = 55.
   b) The Common Base d.c current gain of a transistor is 0.967 .If emitter current is 10mA, What is the value of base current? (10M+5M)
6. a) A JFET has a drain current of 4mA. If I_{DSS}= 8 mA and V_{GS} (off) = 6V. Find the value of V_{GS} and Vp.
   b) Explain why an SCR is operated only in the forward biased condition. (8M+7M)
7. a) Explain about Self Bias Amplifiers.
   b) A Si transistors is used in the self – biasing arrangement of Figure with V_{cc} =12V and R_c = 1 KΩ. The Quiescent point is chosen to be V_{CE} = 6V and I_C = 4 mA. A stability factor S = 10 is desired. If β = 99 find R_1, R_2 and R_E. (8M+7M)



8. a) Explain in detail about analysis of a transistor amplifier circuit biasing h - parameters.
   b) Explain about Transistor Amplifier configurations. (7M+8M)
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